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Animal Rights and Environmental Wrongs: The Case of the Grey Squirrel in Northern Italy

Abstract

Alien species are considered by conservation biologists to be a major threat to biodiversity. To deal with alien invasions, they often recommend completely eradicating the invasive species. Animal rights groups have continually opposed eradication campaigns, sometimes successfully. One such case was the attempted eradication of the grey squirrel from northern Italy.

It would be beneficial for both sides if they find some middle ground they could both agree on, but the differences between animal rights and conservation biologists' views make cooperation seem impossible. I suggest that scientists in general, and conservation biologists dealing with invasive alien species in particular, consult with social scientists and moral philosophers to gain a better understanding of the implications of some of their policy decisions.

Introduction

Conservation biology is a relatively new scientific field. Its aims are: "...to develop the scientific and technical means for the protection, maintenance, and restoration of life on Earth: species, ecosystems, and the processes that sustain them."¹ One of the greatest threats to biodiversity is the introduction of exotic or alien species. These may become invasive and pose a threat to local species or even cause dramatic changes to whole ecosystems, thus jeopardizing their biodiversity. The preferred method of dealing with invasive alien species is their complete eradication (Bomford and O'Brien, 1995). When eradication is not feasible other alternatives such as containment or maintenance at low densities can be attempted.

The animal rights movement has gained momentum in the twentieth century, although its roots are much older. The publication of Peter Singer's *Animal Liberation* in 1975 is considered by many to be the birth of the modern animal rights philosophical debate, from which the activists have also gained momentum (Jasper and Nelkin, 1992). Since the 1970s the movement has had a growing influence on public opinion, education and, in some cases, even legislation. Its main paradigm is that at least some rights, which are considered basic human rights, should also apply to some animals. This definition is vague and partial because a variety of perspectives and doctrines coexist within the animal rights movement. This paper will discuss some of the different animal rights philosophies, as well as some of the conservation biologists' normative concepts, and will show how these philosophies and concepts may be responsible for some of the disagreements, misunderstandings and lack of cooperation between animal rights advocates and conservation biologists.

Both animal rights activist and conservation biologists focus on topics the general public would categorize as "green issues". Both claim to value nature and/or living organisms over at least some economic considerations, and both view the role of humanity as preserver and supporter, rather than mere exploiter of natural resources. In spite of their seemingly similar goals, animal rights organisations and biological conservationists have often found themselves on opposite sides of environmental policy debates. One such case was the attempted eradication of the American grey squirrel from Italy, which will be used in this paper to demonstrate how some of the theoretical differences manifest themselves in a real life situation.

To understand this conflict I will give a very brief and partial sketch of animal rights philosophy and conservation biology concepts, and then describe the background, process, and outcome of the attempted eradication in northern Italy. Finally I will discuss some of the problems and possible solutions this case presents.

Philosophies of Animal Rights

There are different approaches to animal rights philosophy, but all have certain common elements. The obvious one is that they all stem from moral philosophies of rights. This may seem too obvious to be worth mentioning, but the fact is that there is a general confusion and misunderstanding regarding the difference between animal rights and animal welfare. This misconception is common not only among the general public; I have seen it in some environmental and scientific papers, and I am unsure whether even all committed animal rights activists are aware of the difference.

An animal welfarist will try to reduce pain inflicted on animals and improve their living environment to reduce suffering, both physical and mental. She will, however endorse a humane use of animals for human needs. She will oppose unnecessary killing of animals, but she will not categorically oppose all killing of animals for human consumption or industry. While some consider animal welfare as a "less strict" form of animal rights ideology, I consider them to be two different concepts of human-animal relationships. Most animal welfarists view humans as the sole objects of moral value.² It is their utility for humans that is usually the basis for the animals' claim for humane treatment. They are human property and of no moral value in and of themselves. Animal welfare arguments will typically point to the human-only moral circle. Inhumane treatment of animals, according to welfarist philosophies, may lead to cruelty to humans. Unnecessary killing of animals may prevent other humans from aesthetically or economically enjoying them, and so on. Animals have no claims on humans and they have no rights. Humans may have duties regarding animals, but not obligations to them.³

Animal rights advocates view animals as possessing intrinsic value.⁴ The animals in and of themselves, and not their utility to humans, are moral objects. These views extend the moral circle to include some, if not all animals. The same rules that apply for human rights should be applied to animals. Thus if all humans are considered to have a natural and equal right to live, and if no convincing argument to deny this for animals without excluding certain humans as well is presented, then animals should also have the same right (Regan, 1976).

Peter Singer, considered by many to be the father of the animal rights philosophy, calls for equality

in our consideration of animals. He does not mean they should be granted equal rights, since there are differences that are relevant and should affect the types of rights animals are granted. The right to vote, which is denied to children who are incapable of completely grasping the political arena, should probably be denied to animals for the same reason. Discriminating against animals on the sole ground that they are not human is termed “speciesism,” just as sexism is used to describe discrimination on sexual grounds. This term is widely used by animal rights advocates and even animal welfare activists to contest activities they view as discriminatory against animals. The unique traits of individual animals have to be taken into consideration just as individual human qualities are. The right to have an abortion is not relevant for human males just as the right to an education is not relevant for fish. But the right to live in a healthy environment is relevant to all living creatures (Rachels, 1976).

Humans, according to most animal rights views, are a type of animal that has the capacity for moral judgment. The fact that most animals are incapable of grasping the restrictions and directives a moral code dictates does not exclude them from being on the receiving side of it. Humans who are incapable of a moral responsibility, such as children and mentally challenged individuals, are still protected by both laws and moral codes. The animals’ inability to distinguish right from wrong only implies that they cannot be held responsible for violating someone else’s rights. Singer views the individual animal as equal to any other being when the process of evaluating moral status begins. Animals should be judged on the same grounds as humans. One of the most controversial issues in Singer’s philosophy is his assertion that some animals’ lives may actually be more valuable than that of some humans. An intelligent gorilla may have more claims than a human child with severe brain damage, since it may have a better understanding of the source of pain inflicted on her and anticipate future pain (Singer 1975). The same applies to killing an ape or even a dog; it may have a better understanding than some humans do of what is about to happen and what it stands to lose when it dies.

Singer distinguishes between killing and inflicting pain. He considers two different groups in relation to killing. One is a group of “persons” who are both conscious and self-conscious beings. The second is comprised of conscious beings who are not self-conscious. Killing persons against their will is morally wrong since persons have expectations and hopes for the future which cannot be realized after their death. Distinguishing persons from non persons is tricky, and a precautionary approach is recommended (Singer, 1993, pp. 83-109). Killing non-persons, according to Singer, may in some very special cases be morally acceptable. Even here the precautionary approach is recommended, and all aspects of the situation have to be examined before a rational, moral, decision can be made (Singer, 1993, pp. 110-134).

Sentience is the one quality most frequently associated with moral value. Some of the restrictions new laws have placed on animal experimentation are based on this trait and are therefore usually applied to the great apes and most other mammals, but not to lower animals with more primitive nervous systems. The rationale here is that an individual, human or other, who can feel pain, loss, has desires and so on, should have the same protection moral and legal systems provide to humans at a similar mental level. This protection not only includes animals within the circle of moral consideration, it also allows for some distinction between them. Humans may possess a higher understanding of processes that cause pain and may suffer from the anticipation as well. Some higher animals may have similar capabilities, while other may have less or none at all. The main

question here is whether we can positively judge which animals feel pain and how deeply it affects them.

Animal rights are considered on the individual level. Each individual, living, sentient, self conscious being has a right to live⁵ that we as humans may not violate except under conditions in which human life may also be taken (i.e. self-defence). Species as a group may be valuable, and even have some moral significance, as some philosophers claim (Rolston, 1988), but such views are mainly expressed by environmental philosophers. Animal rights are, for the most part, individual rights.

Concepts of Conservation Biology

Conservation biology is concerned with species, populations, ecosystems or even global phenomena. It is not interested in the individual animal, but with the impact on the whole population or even community. Several paradigms for conservation biology have been formulated over the years, each with a unique emphasis that is usually the product of philosophies it tries to implement. The two basic paradigms of conservation biology during most of the twentieth century were resourcism and preservationism (Callicott and Mumford, 1997), the first more anthropocentric, the latter biocentric.

Resourcism views nature as a combination of resources valuable to humans, which are worth preserving for current, as well as future use. Some of these resources (such as trees for timber and fish for food) are renewable. The management of the use and preservation of these renewable resources demands an understanding of the ecological processes involved in their production. The main aim of this knowledge is to produce a greater yield from the resource without destroying its future productivity. This view is closely related to the functionalist concept in conservation ecology. According to functionalist views, humans are a part of nature, and human activity is therefore a legitimate part of ecological processes. A few will even consider the introduction of exotic species for human use, such as sport fishing, a legitimate course of action. The main buzzword of the resourcist view is “sustainability”. Sustainable fishing, sustainable agriculture, sustainable logging and sustainable development are but a few of the terms derived from this idea.

Preservationism values nature for its own sake. Human culture separates us from nature, and our activities can, therefore, no longer be considered a natural part of the ecosystem. Preservationism is associated with compositionalist concepts, which regard humans as a destructive force in ecological processes (Callicott et al. 1999). Since human activity is destructive, a preservationist will try to reduce to a minimum the impact of human activities on the rest of the biosphere. The main preservationist goal is the reduction of human impact on as large a portion of the biosphere as possible. This was the motivation behind the establishment of many nature reserves, which are areas in which human activity is to be minimized.

Initially the buzzwords used by preservationists were “wilderness” and “pristine nature”, and the reserves were considered safe havens for wildlife. During the past few decades “biodiversity” has emerged as the dominant aspect of preservationist activities and nature reserves were considered “biodiversity reserves” and were centered on the preservation of specific endangered species, or unique natural phenomena (Simberloff, 1998). Lately biological integrity has been suggested as a replacement, and a shift from single species reserves to whole community or ecological processes reserves is suggested (Angermeier and Karr 1994).

These views are not mutually exclusive; they form the two extremes of an understanding of our place in the ecosystem. Most preservationists will admit that humans have as much claim for survival as other species, and that development, preferably sustainable, is part of our existence. Resourcists are equally aware of the destructive element in human activities and strive to reduce it. Most conservation biologists are actually working under both assumptions: humans are a part of nature and are using natural resources, and humans are destroying nature and their impact should be minimized, or even reversed. This dichotomy may be clearest in the case of restoration ecology. There human technology is being applied to the restoration of areas or functions destroyed by other human technology. Both the value of nature, untouched by human culture, and the notion of the active management of nature with the aid of human technology, are present here.

Invasive alien species are considered one of the greatest threats to biodiversity today. Their introduction causes extinctions of species all over the world, and is causing major ecological changes (Gosling et al, 1989, Vitousek, 1996, Mack et al, 2000), particularly on small islands (Roemer et al. 2002). Alien species can directly prey on or compete with local species, (as was the case with the brown tree snake on Guam), or they can indirectly harm them by introducing new pathogens or altering food webs (as was the case with the feral pigs on islands off the California coast). They cause great economic damage, estimated in millions of dollars annually (OTA, 1993, Pimentel, 2000). When confronted with an invasion, the preferred method of action in most cases is the complete eradication of the alien species (Zavaleta, 2002, Genovesi, 2000, IUCN, 2000, Myers et al 2000, Simberloff, 2002). When this is impossible, control at low densities and other methods are used to prevent the spread and minimize further damage by the invasive species.

Grey Squirrels in Italy

The American grey squirrel (*Sciurus carolinensis*), a species native to eastern North America, was first introduced into the Piedmont area (north-western Italy) in 1948. Two pairs were imported from Washington, DC (USA) and released at Stupinigi (province of Turin). In 1966, five animals imported from Norfolk (Virginia, USA) were released into the park of Villa Gropallo at Genoa Nervi. A third introduction occurred in 1994 at Trecate (province of Novara) when the municipality funded the release of three pairs of grey squirrels in an urban park; however, in response to pressure to eradicate this population, the animals were recaptured two years later. In all these cases the animals were released for aesthetic reasons, usually by private land owners who enjoyed the animals during their travels to the United States. The population in Genoa Nervi still seems to be contained to a 2–3 km² area near the site of introduction. The site is surrounded by the sea and by busy roads, and the very limited presence of wood cover in the surrounding area seems to make expansion of the population unlikely, at least in the short term (Bertolino and Genovesi, 2003).

The Piedmont population has shown an exponential increase in range since its introduction. Until 1970, the grey squirrel was observed only near the original release site, occupying an area of about 25 km². In 1990, the species' range was 243 km², in 1997 380 km², and in the winter of 1999 the grey squirrel was present in an area of 880 km². The exponential range increase is consistent with the pattern predicted by Elton (1927) for the establishment of a species. This pattern is characterized by a first phase of settlement (until about 1970), when the possibility of extinction is high, a phase of rapid increase, and finally a stabilization phase. Accordingly, the spread of the grey squirrel in

Italy can be described by a first phase of slow increase and a subsequent rapid population increase in the 1998–2000 period (Bertolino and Genovesi, 2003, Lurtz et al., 2001, Genovesi and Bertolino, 2001).

Possible Threats

Italy has the only populations of grey squirrels in continental Europe. In the British Isles, where the species was introduced several times at the end of the 19th century and the beginning of the 20th century, the grey squirrel has extensively replaced the native red squirrel (*Sciurus vulgaris*), which is now restricted to some conifer forests in Scotland and a few areas in England and Wales (Gurnell, 1996, Gurnell and Pepper, 1993). A similar replacement pattern is being recorded in Italy: a distribution survey in the area where grey squirrels are present showed a 46% reduction of the red squirrel's range from 1970 to 1990 and a further decrease of 55% from 1990 to 1996 (Bertolino and Genovesi, 2003, Genovesi and Bertolino, 2001). Another similar replacement was reported in California, where the introduced eastern grey squirrel replaced the local fox squirrel (*Sciurus niger*) (Lidicker, 1991). Some fear the grey squirrel will spread to the whole of Eurasia and fully replace native squirrel species.

Another major concern is the impact of the grey squirrel on the forest ecosystem and timber activity through de-barking. Bark-stripping activity inflicts wounds that can facilitate the penetration of insects and fungi and severely degrade timber quality, especially for hardwood (Kenward, 1983, 1989). Sycamore (*Acer pseudoplatanus*) and beech (*Fagus sylvatica*), which are particularly vulnerable to de-barking, are widely distributed in the Alps and are the dominant species in some ecosystems (Bertolino and Genovesi, 2003). Kenward (1989) suggests that naturally regenerating woodlands are less susceptible to bark stripping, and that the main factor contributing to de-barking is the well-spaced planting in commercial plantations.

A population of grey squirrels introduced to South Africa is suspected of preying on eggs and nestlings, but the extent and impact is unknown (Bigalke and Pepler, 1991). Similar cases of squirrels preying on bird (Wesolowski, 2002) and turtle (Kolbe and Janzen, 2002) eggs have also been reported.

Actions Taken

From 1989, several international organizations and scientists, including the IUCN and the British Forestry Commission, informed the Italian authorities of the threat posed to the red squirrel population by the grey squirrel invasion and urged the eradication of the invader species. The National Wildlife Institute (NWI the Italian government agency for wildlife research and conservation) approved a recommendation to eradicate the grey squirrel from Italy and warned the Ministry of Environment, the Ministry of Agriculture, and all local administrations (responsible for pest management plans) of the drastic expansion of the grey squirrel's range and of the risks related to its presence (Bertolino and Genovesi, 2003).

In 1996, the total grey squirrel population was estimated at about 6390 animals. At the time, the grey squirrel was confined to the agricultural area of central Piedmont, suggesting that eradication of the population was still feasible. On the basis of the presumed feasibility of an eradication and the urgent need to start the control before further expansion (the arrival of the species in the Alps

and the hilly area was expected in approximately 2 years), the NWI, in co-operation with the University of Turin, proposed a management action plan in late 1996. This consisted of three steps: (1) continuous monitoring of the grey squirrel's range using hair-tubes; (2) a trial eradication to assess the feasibility of total removal; (3) planning and implementation of the eradication of the entire Piedmont population, if feasible.

One of the first steps of the plan was the experimental removal of the small population present in the Racconigi Park, in order to test techniques, while further steps in the eradication were to have been carried out by the local authorities. In order to improve public acceptance, the program was sent to the main Italian non-governmental organizations (NGOs), including animal rights groups, for their comments in early 1997. In April 1997 a consultation meeting with some of the animal rights organizations which opposed the project was organized to discuss possible alternative techniques. Both translocation to the greys' original range (North America) and the possibility of neutering the whole population were rejected⁶ (Gevonesi and Bertolino, 2001). On the basis of the resulting comments, and after a formal request of one NGO (Legambiente), it was decided to follow the guidelines of the "Panel of Euthanasia" (AVMA, 1993), and the following protocol was adopted: 1) live-trapping of the squirrels, in order to avoid risks to non-target species; 2) frequent control of traps, to reduce captivity of animals; 3) anesthesia with halothane, a tranquillizer that reduces stress in rodents; 4) subsequent euthanasia of animals with an overdose of halothane; and 5) constant supervision by a veterinarian. On the basis of the revised protocol, most NGOs approved the eradication plan.

The operative phase started in May 1997. The aims of the trial eradication were: (1) to evaluate the efficiency of live-trapping to remove grey squirrels, (2) to estimate the effort needed to eradicate the Piedmont population, (3) to assess the presence of parapoxvirus.⁷

In mid-April 1997, the trial eradication was started. Captured animals were placed in a sealed box, treated with halothane, and monitored by a veterinarian to detect stress indicators and the time needed for unconsciousness. After euthanasia, a blood sample was taken and a post-mortem examination was carried out in the laboratory. During the two trapping sessions (a total of eight trapping days), 188 animals were trapped; no non-target species were captured. The squirrels reached unconsciousness in less than a minute and were then euthanised in the field.

Opposition and Outcomes

In June 1997, animal rights groups took the coordinator of the trial eradication and the director of the NWI to court, charging them with illegal hunting, damage to state property and cruelty to animals. The trial eradication was halted. Under Italian law, the NWI does not require authorization to carry out research involving the capture of animals, but it cannot directly carry out pest-control programs. The Ministry of Environment stated that the trial eradication was aimed at protecting state property, specifically the native red squirrel, and was consistent with the Bern Convention and the Convention on Biological Diversity adopted by Italy. The first stage of the trial ended in December 1999. The judge ruled that the two officers were guilty of illegal hunting and cruelty to animals. They were acquitted of the charge of damage to state property. The sentence was appealed and in July 2000 the two officers were acquitted by the Appeals Court (Genovesi and Bertolino, 2001, Bertolino and Genovesi, 2003).

The legal case was reported in the media, including national television and Italy's most influential newspapers, from varied perspectives (Genovesi and Bertolino, 2001). Several organizations, including the World Conservation Union (IUCN), the Italian Zoological Society, and the Italian Mammal Society, supported the trial eradication, indicating that the project carried out by the NWI was scientifically sound and ethically proper.

The three-year legal struggle caused the failure of the entire campaign. The early termination of the trial eradication did not allow an estimation of the effort needed to remove the total population and local administrations did not proceed with the planned eradication. As a result, the species has significantly expanded its range and eradication is no longer considered feasible (Bertolino and Genovesi, 2003).

Future Prospects

An expansion of the grey squirrel into the Alps is predicted to occur in the next few decades, and a further expansion into a large portion of Eurasia is seen as probable. This prediction is also supported by a model developed by Lurz et al. (2001): it indicates that the spread of the grey squirrel is likely to speed up in the pre-alpine forest because of the more continuous woodland and that the species will cross the Alps and reach France in 30–50 years. Data collected in the UK and Italy consistently support the conclusion that the species could rapidly and successfully colonize a wide area of continental Eurasia (potentially including the entire global distribution range of the red squirrel) in the medium to long term.

A strategy for the control of the grey squirrel was developed in 2000. The aims of the strategy are to:

- 1) Identify and protect key areas for the conservation of viable populations of the red squirrel and
- 2) Contain the grey squirrel in order to delay its expansion to neighbouring countries and to the mountain system of Italy.

Comments and Analysis

The case of the Italian squirrels illustrates the role social beliefs and concerns can play in policy decisions. While the input from scientific sources may indicate a need for quick action, ignoring public opinion and failing to generate public support for this action may be counterproductive. It was clear even before the actual trial eradication that some animal rights groups opposed the procedure (Genovesi and Bertolino, 2001). The difference in focus of both groups $\frac{3}{4}$ individual animals for animal rights, and species for biologists $\frac{3}{4}$ is one reason for the initial objection. From an animal rights perspective, the preservation of a species does not outweigh the life of even a single individual animal. From an ecologist's view the preservation of a species is of the highest priority, especially when an alien that should not have been there in the first place is threatening that species.

The main reason neutering and relocation were considered infeasible was financial. The actual cost of removal during the trial eradication was about 50 Euro/squirrel (Bertolino, personal

communication). The additional cost for neutering is estimated at 50 (Genovesi, personal communication) to 80 (Bertolino, personal communication) Euro/squirrel. Since only about half the population (all of the males or all of the females) has to be neutered, an addition of 150,000-400,000 Euro to the budget of 300,000-500,000 Euro would have been required to convert the planned eradication to a neutering plan. Even if we consider the legal expenses of both sides, which amount to about 20,000 Euro, they do not come close to the additional amount required for neutering (Genovesi and Bertolino, personal communications). An alternative method of chemical control of grey squirrel reproduction was suggested as early as 1961, and examined in 1983. The estimate then was that a sterile population may be a superior alternative to eradication (Johnson, 1983).

Because, according to the proposed plan, all animals were to be captured and treated or released, the only difference was the additional cost for neutering. I wonder if some of the animal rights supporters could have produced some of the additional funds, or perhaps some veterinarians supporting either the campaign or the animal right activists could have been persuaded to contribute their expertise in neutering the animals, which could have significantly reduced these costs.

Another alternative to eradication may come from research in areas where both species of squirrels have coexisted for long periods. One such study suggests that the tree species distribution in this area was a possible explanation for the reduced effect of the grey squirrel presence on the population of the red squirrels (Bryce, 2002). Reproduction of such tree communities to facilitate coexistence has not been explored.

In this case communication between the two sides was established before the actual trial eradication. The animal rights groups opposing the procedure declared so in advance. If the conservation biologists had known of the possible outcome, I doubt if they would have started the trial eradication before reaching an understanding with the remaining groups. They themselves now suggest that a thorough examination of public acceptance and legal aspects be conducted before attempting any similar campaign (Genovesi and Bertolino, 2001, New Zealand Office of the Parliamentary Commissioner for the Environment, 2000, Thompson and Lapointe, 1995). But the lives of the individual animals, which are the main concern of animal rights groups, are not a part of these considerations. This strikes me as overlooking a fundamental issue. Even if conservation biologists do not regard individual animal lives as an issue of moral significance, the fact remains that this has been the focal point of several struggles with animal rights groups around the world (mute swans, feral cats and others). The general public and media seem to support these groups more often than they do the scientists. Yet a substantial part of the scientific community treats animal rights activists as a direct threat to wildlife conservation (Schmidt, 1990) and act as if animal rights views are not worth serious consideration. Unfortunately this is often the animal rights activists' view of scientific analysis, which leaves very little room for dialog (Decker and Brown, 1987).

Another issue that surfaced during the research on grey and red squirrel interactions (mainly in Great Britain), was the role of Parapoxvirus, a viral disease, in the decline of red squirrel populations. This disease is believed by some researchers to be at least a partial explanation of the replacement of red squirrels by greys in areas of interaction (Tompkins et al, 2003, Rushton et al, 2000, Sainsbury et al, 2000). The idea of developing a vaccine for the disease is never raised, although, like the grey squirrels carrying it, the virus is also an alien species, directly responsible for

red squirrel mortality. If the virus is the deciding factor, then removing it could prevent the damage, and enable the coexistence of both squirrel species.

As for the animal rights groups, they have used two important factors that worked for their side this time. One was the unique legal situation in Italy, which enabled them to present a real case against the NWI. The other was the “Cute Furry Animal” effect that squirrels have on the general public and that enabled the rights groups to mobilize the media and the public against the scientists and the eradication plan. But this case is not typical, and it is only one of possibly many more to come. By using the legal and public options they caught the NWI unprepared, but now there is an attempt to modify the law to accommodate such cases. Since Italy has joined international and European treaties, which compel them to prevent the introduction of invasive species from their borders to neighbouring countries (Bern Convention, Convention on Biodiversity), policy and law may change in the near future. Next time animal rights activists may not have the law on their side, so they may not be able to take legal action against future eradications. Public cooperation may also be doubtful if the next case will be an eradication of a toad, snake or spider. Perhaps cooperating with the scientists to fashion a plan acceptable to both sides, would have paid off in the long run more than the sweet victory in this single case. It could also have been instrumental in conveying to the scientists the economic and moral value animal lives have in the general public view.

There are some questions regarding the almost automatic demand for eradication of alien species, which I will not go to in detail in this paper. “Biodiversity” is one term that is often used in the context of alien species, but it has diverse meanings, and it is doubtful that it carries the moral weight to justify killing animals (Takacs, 1996, Angermeier, 1994). The definition of “natural” processes, which is fundamental for declaring species as alien or exotic, has also been attacked (Cronon, 1995). The categorical rebuke of alien species is questionable (Peretti, 1998). The ability to predict invasiveness of exotic species is, at best, limited (Wilson, 2000), and even the very idea of ecological management has been criticised as arrogance (Stanley, 1995). These have all been discussed by others elsewhere⁸ and deserve deeper consideration than the scope of this paper allows.

One question I do want to address here is the claim scientists make, declaring that science and scientific evaluations are value-free. I will only show how this claim may be controversial with regards to the treatment of alien species. One aspect of this question is the role of humans in natural processes. I have shown before the different views within conservation biology. For example, there are some (a minority within the scientific community) who argue that alien species may actually increase biodiversity in some cases (McKinney, 2002). But even if the commonly accepted assertion that alien species are damaging is adopted, what are the moral implications of such a statement? Alien species are, and will probably always be, introduced for agriculture. Preventive policy, even aggressive white lists as imposed in New Zealand, involves little moral debate, but faces economic pressures from interest groups international trade organizations and even national governments. Proactive measures, which involve deeper moral dilemmas, do not seem to influence scientists. When a scientist has to plan a policy regarding alien species she takes economic and legal constraints into consideration. Moral and social considerations are often not only overlooked, but sometimes even actively regarded as “unrelated”, “biased” or “not scientific” and therefore dismissed and ignored. When moral and social issues are considered, they are usually considered in a public relations context, as possible setbacks to the feasibility of eradication campaigns. It is true

that most animal rights activists do not study each case to fully understand the motivation behind scientific recommendations. In some cases animal rights activists have been successful in preventing swift killing of animals by humans, just to leave them to a fate of long and painful death (Coblentz, Bruce E., personal communication). But there are questionable scientific decisions and recommendations as well.

Some actions taken by conservation biologists involve legal problems. To address them they consult legal experts (Shine and Gundling, 2000). Some involve economic questions and they consult economists to answer these. But when faced with moral or social dilemmas, scientists tend to brush the problems aside instead of referring to moral philosophers and social scientists. I feel this case, and the whole question of alien species, demonstrate that conservation ecology decision-making calls for a greater involvement of professional social scientists and moral philosophers. In some cases a better understanding of animal rights positions could be the key to cooperation with the activists. The same holds true to a better understanding of the biology involved on the part of the animal rights groups. Animal rights is not the only issue that has spurred demonstrations against conservation campaigns. In the Chicago area, the community of Cook County opposed a plan to cut down trees in local parks to restore them to a condition closer to what was typical of the area before the European settlement (Barro and Bright, 1998). A plan to remove a few Eucalyptus trees from the San Francisco area to help with the efforts to conserve a rare endemic plant similarly met with grave opposition from the local community on social grounds (Todd, 2002).

Consulting with experts in social science or moral philosophy could help scientists understand the opposition they sometimes face. A better understanding of the motivation behind these groups' objection may lead to the formation of better plans that will be accepted by a broader public. It may also enable them to convey their position to the general public in ways that will stir up less resentment and opposition, and possibly even greater cooperation.

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Notes

1. The Society for Conservation Biology web page (<http://conbio.org/SCB/Information/Mission/>).
2. For a welfarist who does not fit into this description see: Rollin, B., 1992. *Animal rights & human morality*, Buffalo, N.Y. ,Prometheus Books.
3. For some examples of welfare philosophies see Regan and Singer, 1976, pp. 179-184.
4. Andrew Linzey has a God-derived animal rights philosophy/theology that may be considered non-intrinsic. For more detail on his "Theos Rights" theology see Linzey, A. 1994, *Animal Theology*. SCM Press, London.
5. I focus on the right to life since this was the centre of the debate in the case discussed later. This is probably the most fundamental right with the least disagreement and variation on within the animal rights movement

6. The main reason for rejecting these alternatives was financial. See my discussion further on.

7. Parapoxvirus is a viral disease which seems to be, in many cases, fatal to red squirrels. Grey squirrels are suspected to be carriers of the virus and of infecting local red squirrels with the disease.

8. For some discussion on these subjects see for example: Simberloff, D., 2003. "Confronting Introduced Species: A Form of Xenophobia?" *Biological Invasions* 5, 179-192.

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